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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,707

02/01/2006

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EXAMINER

OLSEN, LIN B

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,707	<b>Applicant(s)</b> BABA ET AL.	
	<b>Examiner</b> LIN B. OLSEN	<b>Art Unit</b> 3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) 5-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because in Fig. 13C, the nomenclature inside box 31 is not English.

Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Specification***

The disclosure is objected to because of the following informalities:

In the 7<sup>th</sup> line of the paragraph starting "In Fig. 11 and Fig. 12" on page 14 of the specification, the verb "impact" should be "impart".

Appropriate correction is required.

### ***Claim Objections***

Claims 5-12 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. Claim 3 is a multiple dependent claim and is included in the claims from which claims 5-12 depend. See MPEP § 608.01(n). Accordingly, the claims 5-12 not been further treated on the merits.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Rejection under 35 U.S.C. 112, 2nd Paragraph, No Disclosure or Insufficient Disclosure of the Structure, Material, or Acts for Performing the Function Recited in a Claim Limitation Invoking 35 U.S.C. 112, Sixth Paragraph.

The claim elements in question are:

In claim 1,

Claim Element	Described at
means for judging a of collaboration ratio	Para. 78 then 86 ,
means for carrying out complete remote motion	Para. 86 unclear what 118 does
means for executing autonomous/remote collaboration motion	Para. 86 Is only A/R command a correcting position?

In claim 2,

Claim Element	Described at
means for judging autonomous reset	Para. 85/86 not clear how judge
means for judging termination by which the mode is automatically	Para. 85 block 116– not clear

In claim 3,

Claim Element	Described at
coordinate-shifting means for controlling	Para. 87, no detail is this well known?

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Claim Element	Described at
so that the read instruction	

Each of the Claim elements is a means plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function. The paragraph where some description was found is noted.

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function without introducing any new matter (35 U.S.C. 132(a)).

If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts so that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant is required to clarify the record by either:

(a) Amending the written description of the specification such that it expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)); or

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(b) Stating on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification, perform the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1 and 2** are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,431,296 to Won (Won). Won is concerned with an articulated tracked robot that can operate in many modes.

Regarding independent **claim 1, A robot apparatus** (robot 100, col. 4 line 21) **comprising:**

**means for judging an autonomous mode or an autonomous/remote collaboration mode;** (Since col. 4 line 23 states that the operator using a remote control can select different levels of control of the robot, it is inherent that in the robot, it can judge between these levels)

**means for executing an autonomous motion when the mode judging means judges said autonomous mode;** (Col 4, line 26-27, where autonomous operation is defined as the operator passing on a high level command that the robot executes)

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**means for judging a of collaboration ratio when the mode judging means judges said autonomous/remote collaboration mode;** (col. 4 lines 24-26 and 27-31, two collaboration levels are defined that the operator/robot can work in hence a means for judging between them must be in the robot.)

**means for carrying out complete remote motion when the judged collaboration ratio is 100%; and** (Col. 4 lines 24-26, describes teleoperation mode in which the operator directly controls the motors and actuators)

**means for executing autonomous/remote collaboration motion when the judged collaboration ratio is not 100%.**( col. 4 lines 27-31 describes partially autonomous mode in which the robot takes care of details such as avoiding obstacles, while the operator directs the higher level goals.)

Regarding **claim 2, The robot apparatus according to claim 1, further comprising:**

**means for judging autonomous reset by which the mode is automatically shifted to an autonomous motion when said complete remote motion is terminated without any abnormality; and** ( Col 12, line 25-26 describes the operator invoking remote mode and the robot returning to autonomous whenever there is no further remote operation to perform. )

**means for judging termination by which the mode is automatically shifted to an autonomous motion when said autonomous/remote collaboration motion is terminated.** (Col 12, lines 29-34 describes the operator adding further tasks to a

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sequence and being notified when they are achieved also with returning to autonomous mode without further remote instructions.)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim **3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Won as applied to claims 1 and 2 above in view of U.S. Patent Pub. No. 2004/0111196 to Dean (Dean). Dean is concerned with a programmable lawn mower that can operate autonomously from a program or by interaction with a user.

Regarding **claim 3, The robot apparatus according to claim 1 or 2, wherein the autonomous motion executing means includes:**

**means for reading an instruction;** (As shown in Won Fig. 2. element 210 of the robot is an onboard control system which col. 4 lines 50-52 describes as having one or more computer systems. The ability to read instructions is inherent in computers.)

**means for calculating the present coordinates;** (Won does not provide details of the control system programming to accomplish tasks in the robot, but Dean provides information on how its robot acts in this regard. Dean Fig. 7 addresses correcting the robots position. Box 702 represents reading the present coordinates (Para. 70)). It would have been obvious to one of ordinary skill in the art at the time of the invention to use correcting algorithm as shown in Dean in having a robot move as described in Won, to assure that accuracy is maintained as needed.

**means for comparing the read instruction coordinates with the calculated present coordinates;** (Dean Fig. 7 block 706 – read data compared to actual.)

**coordinate-shifting means for controlling so that the read instruction coordinates are made coincident with the calculated present coordinates; and**

**means for executing the read instruction.** (Dean Fig. 7 block 720 corrective circuits move robot to commanded coordinates to continue operation as commanded.)

### ***Claim Rejections - 35 USC § 103***

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Won/Dean as applied to claim 3 above, and further in view of U.S. Patent Pub. No. 2002/0103575 to Sugawara (Sugawara). Sugawara is concerned with program executing method for a robot.

Regarding claim 4, **The robot apparatus according to claim 3, wherein the instruction executing means includes:**

**means for judging, on the basis of recognition of the image of a photographed subject, whether or not the photographed subject is a target subject; and**

**means for calculating the distance to the target subject.** (Neither Won nor Dean discuss how the controller would use the information provided by camera and sensors to recognize the door handle as illustrated in Fig. 17 of Won. Sugawara Para. 67 illustrates that image recognition from a camera input and distance measurement from sensor inputs are well known at the time of the invention.) It would have been obvious to one of ordinary skill in the art at the time of the invention to use the well known algorithm of Sugawara in the robots of either Dean or Won to recognize and measure the distance to a target to allow autonomous mode the same capabilities as remote mode.

### ***Conclusion***

The prior art made of record and not relied upon is listed on the enclosed form PTO-892 and considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIN B. OLSEN whose telephone number is (571)272-9754. The examiner can normally be reached on Mon - Fri, 8:30 -5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lin B Olsen/  
Examiner, Art Unit 3661

/Thomas G. Black/  
Supervisory Patent Examiner, Art Unit 3661